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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,686	03/25/2002	Seiji Onishi	2001-1823A	7787

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WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

BATTAGLIA, MICHAEL V

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



**Office Action Summary**

Application No.

10/018,686

Applicant(s)

ONISHI ET AL.

Examiner

Michael V. Battaglia

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.



*Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama et al (hereafter Uchiyama) (US 6,163,409) in view of Alon (US 6,449,225).

In regard to claim 1, Uchiyama discloses a first light source (Figs. 1 and 2D, element 21) for emitting a first light beam with an arbitrary wavelength (Col. 6, lines 64-67); a second light source (Figs. 1 and 2C, element 11) for emitting a second light beam with a wavelength different from that of the first light source (Col. 6, lines 61-67); a synthesizing unit (Fig. 1, element 13-1) operable to make an optical axis of the first light beam emitted from the first light source coincide with an optical axis of the second light beam emitted from the second light source (Col. 7, lines 49-53); a conversion unit (Fig. 1, element 14) operable to convert a light beam outputted from the synthesizing unit into substantially parallel light; a converging unit (Fig. 1, element 16) operable to convert a light beam outputted from the conversion unit onto an optical disk (Fig. 1, "Optical Disk"); a light path length conversion unit (Fig. 1, element 15) comprising a single mirror provided between the synthesizing unit and the converging unit, the single mirror being operable to reflect the light beam at a slope surface thereof, thereby lengthening a light path length of the light beam (note that the light path length of the light beam is lengthened because the light path length is longer than the distance between the synthesizing unit and conversion unit (Pythagorean Theorem)); and a detecting unit (Fig. 1, elements 17 and 27) operable to receive



the light beam reflected on the optical disk, wherein when a back focus (Fig. 2D, element A) of the conversion unit for the wavelength of the first light source is  $f_1$  and a back focus (Fig. 2C, element A) of the converting means for the wavelength of the second light source is  $f_2$ , the first light source is located at a position closer to the conversion unit than a position located apart from the conversion unit by  $f_1$  (Fig. 2D), and the second light source is located at a position farther from the conversion unit than a position located apart from the conversion unit by  $f_2$  (Fig. 2C). Uchiyama does not disclose that the single mirror is a single prism mirror and that the light beam passes therethrough. It is noted that the synthesizing unit of Uchiyama is an optical unit.

Alon discloses light path length conversion unit (Fig. 3B, element 37) comprising a single prism mirror (Col. 5, lines 67) provided between an optical unit (Fig. 3B, element 36) and a converging unit (Fig. 3B, element 18) and positioned such that a light beam passes therethrough (Fig. 3B), the single prism mirror being operable to reflect the light beam passing therethrough at a slope surface thereof, thereby lengthening a light path length of the light beam (note that the light path length of the light beam is lengthened because the light path length is longer than the distance between the optical unit and conversion unit (Pythagorean Theorem)).

Therefore, the light path length conversion unit of Alon was an art-recognized equivalent to the light path length conversion unit of Uchiyama for the purpose of lengthening a light path length of a light beam and one of ordinary skill would have found it obvious to use either one including the light path length conversion unit of Alon, wherein the light beam passes therethrough, for lengthening a light path length of the light beam of Uchiyama.

In regard to claim 5, Alon inherently discloses that the light path length conversion unit is made of a material having a refractive index capable of lengthening light path length (inherent



that a light path length conversion unit that lengthens light path length is made of a material having a refractive index capable of lengthening light path length).

In regard to claim 7, Uchiyama discloses that an aperture diaphragm (Fig. 1, element 19) adapted to move with the converging unit and operable to converge a light beam spot of desired size onto the optical disk (Col. 7, lines 35-45).

In regard to claim 9, Uchiyama discloses that when numerical aperture on the side of the optical disk corresponding to the combination of the first light source and the optical disk is made NA1, and numerical aperture on the side of the optical disk corresponding to the combination of the second and the optical disk is made NA2, the following conditional expression is satisfied:  $NA1 < NA2$  (Col. 7, lines 35-42).

In regard to claims 6, 8 and 9, when the imaging magnification of the converging unit with respect to the first light source is made  $m1$ , and imaging magnification of the converging unit with respect to the second light source is made  $m2$ , satisfaction of the following conditional expressions flows naturally from the structure positively claimed and is therefore inherent:  $1.5 \leq (m2/m1)$ ,  $|m1| \leq 0.068$ ,  $|m2| \leq |m1|$ . In further support of inherency, the goal of both the claimed optical pickup and the optical pickup of Uchiyama is compatibility with both DVD's and CD's. Inherent to the accomplishment of that goal is the realization of the imaging magnifications respectively required for use with DVD's and CD's. If satisfaction of the conditional expressions is not inherent, then doing so would be obvious. The general conditions of imaging magnifications respectively required for use with DVD's and CD's are disclosed by the structure of the optical pickup of Uchiyama as evidenced by the ability of optical pickup of Uchiyama to record to and reproduce from both DVD's and CD's (Figs. 1, 2C and 2D and Col. 7, line 63-Col.



8, line 65). “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

In regard to claim 10, Uchiyama discloses that when the wavelength of the first light beam emitted from the first light source is made  $\lambda_1$ , and the wavelength of the second light beam emitted from the second light source is made  $\lambda_2$ ,  $760 \leq \lambda_1 \leq 810$  nm,  $620 \leq \lambda_2 \leq 680$  nm (Col. 14, lines 56-67).

In regard to claim 11, Uchiyama discloses that the first and second light beams as divergent lights emitted from the first and second light sources are incident on the synthesizing unit, thereby scattering a light reflected on a surface of the synthesizing unit (Fig. 3).

2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama in view of Alon as applied to claim 1 above, and further in view of Sasaki et al (hereafter Sasaki) (US 5,493,554).

Uchiyama discloses that the synthesizing unit comprises a polyhedron beam splitter having more than six sides (Fig. 1, element 13-1), and the first and second light sources are positioned such that the synthesizing unit receives the second light beam from a direction that is not perpendicular to a direction of the first light beam (Fig. 1 and Col. 7, lines 49-53). Uchiyama does not disclose that the synthesizing unit comprises a hexahedron beam splitter, and the first and second light sources are positioned such that the synthesizing unit receives the second light beam from a direction perpendicular to a direction of the first light beam.

Sasaki discloses a synthesizing unit (Fig. 1, element 9) comprising a hexahedron beam splitter, and first and second light sources (Fig. 1, elements 1 and 6) that are positioned such that



the synthesizing unit receives the second light beam from a direction perpendicular to a direction of the first light beam (Fig. 1) so that “the optical parts can be simply arranged and the optical head can be easily manufactured” and “provided at low costs” (Col. 21, lines 58-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the synthesizing unit of Uchiyama to comprise a hexahedron beam splitter, and for the first and second light sources of Uchiyama to be positioned such that the synthesizing unit receives the second light beam from a direction perpendicular to a direction of the first light beam as suggested by Sasaki, the motivation being to reduce the complexity of the optical pickup device of Uchiyama through a simple arrangement of optical parts that are easily manufactured. It is noted that Uchiyama teaches that positioning the first and second light sources the synthesizing unit receives the second light beam from a direction that is not perpendicular to a direction of the first light beam will help reduce the size of the optical pickup (Col. 7, lines 49-53). However, the tradeoffs between reduced size brought about by complex arrangement of optical parts and reduced cost brought about by simple arrangement of optical parts are notoriously well known in the art. One of ordinary skill in the art at the time of the invention would have found it obvious to forego complexities associated with reduced size in favor of simplicity and the resulting cost reduction, ease of manufacture, and market availability.

### ***Response to Arguments***

3. Applicant's arguments filed September 1, 2006 with respect to claims 1 and 5-11 have been considered but are moot in view of the new ground(s) of rejection.

It is however noted, in regard to claim 1, that the light path length of the light beam lengthening is a result of the reflection of the light beam from the surface of the mirror and



Art Unit: 2627

nothing more. If a light beam is reflected from a surface of a mirror, the light path length of the light beam is lengthened regardless of whether the light beam passes through the mirror or is reflected from the surface of the mirror without passing through the mirror. The sloped surface that reflects the light beam in the claimed device, the device of Uchiyama, and the device of Alon alike simply reflects the light beam at a right angle, and as a result lengthens the light path length. Furthermore, the structures of the single prism mirror of Applicant (Figs. 1 and 2) and the single prism mirror of Alon are identical. Applicant is attempting to distinguish the claimed invention from prior art by claiming the specifics a prism mirror that is notoriously old and well known in the optical pickup art.

4. Applicant's arguments filed September 1, 2006 with respect to claim 12 have been fully considered but they are not persuasive. Applicant cites *In re Gordon* and argues that modifying the positioning of the light sources of Uchiyama in the manner suggested by Sasaki would render the optical pickup of Uchiyama inoperable for its intended purpose of making the optical head smaller. However, in *In re Gordon* the modification to the prior art filter would have rendered the filter inoperable for its intended purpose of filtering because the modification would have clogged the filter. The intended purpose of the optical pickup of Uchiyama is reproduction compatible with information surfaces having different densities. Nothing suggests that the proposed modification of the positioning of the light sources of Uchiyama as suggested by Sasaki would render the optical pickup of Uchiyama inoperable for its intended purpose because the optical pickup of Sasaki successfully performs reproduction compatible with information surfaces having different densities with the light sources of Sasaki positioned as suggested by Sasaki.



Applicant also suggests that Uchiyama teaches away from the modification suggested by Sasaki. However, this argument is addressed in the rejection of claim 12 above.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Battaglia whose telephone number is (571) 272-7568. The examiner can normally be reached on M-F, 8:30-5:00.

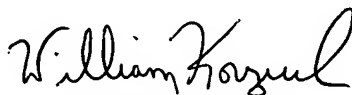
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael Battaglia



WILLIAM KORZUCH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600